

**AMENDMENTS TO THE CLAIMS**

The following is a complete, marked up listing of revised claims with a status identifier in parenthesis, underlined text indicating insertions, and strike through and/or double-bracketed text indicating deletions.

**LISTING OF CLAIMS**

1. (Currently Amended) A computer readable medium storing ~~a computer executable program to reproduce a data format structure and having a~~ an executable data structure for managing reproduction of at least video data having multiple reproduction paths recorded on the computer readable medium by a reproduction device, comprising:

a data area for storing stream files, the stream files including at least a portion of the video data having multiple reproduction paths, the video data having multiple reproduction paths being divided into one or more interleaving units, each interleaving unit associated with one of the reproduction paths, each interleaving unit starting and ending with a reproduction path change point, the interleaving units associated with different reproduction paths being interleaved in the data area, and the video data in each interleaving unit being divided into one or more entry points; ~~and~~

a playlist area for storing playlist files, the playlist file including at least one playitem, the playitem identifying a playing interval in a clip of the video data; and

a clip information area for storing clip information files, the clip information files ~~a management area separate from the data area, the management area storing management information~~ for managing reproduction of the video data having multiple reproduction paths by the reproduction device, the clip information file ~~management information~~ including at least one an entry point map associated with a corresponding each reproduction path of the multiple reproduction paths, each entry point map associated with a corresponding stream file and identifying the entry points in the video data for the associated reproduction path, the stream file, the clip information file, and the playlist file being logically separate.

2. (Currently Amended) The computer readable medium of claim 1, wherein the video data having multiple reproduction paths is divided into a plurality of clip stream files, each ~~clip stream~~ file including video data associated with one of the multiple reproduction paths, and each stream-clip file divided into one or more of the interleaving units.

3. (Cancelled)

4. (Currently Amended) The computer readable medium of claim 1, wherein each interleaved unit in at least one ~~clip stream~~ file includes a same number of entry points.

5. (Currently Amended) The computer readable medium of claim 1, wherein at least two interleaved units in at least one stream-clip file have a different number of entry points.

6. (Cancelled)

7. (Previously Presented) The computer readable medium of claim 1, wherein each entry point map indicates which of the identified entry points is a last entry point in an interleaved unit.

8. (Previously Presented) The computer readable medium of claim 1, wherein each entry point map indicates which of the identified entry points is a first entry point in an interleaved unit.

9. (Previously Presented) The computer readable medium of claim 1, wherein the entry point maps are aligned in time.

10. (Currently Amended) The computer readable medium of claim 2, wherein ~~a management information includes an~~ the clip information file is associated with each ~~clip~~ stream file, each clip information file including at least one entry point map associated with each stream ~~clip~~-file, each entry point map identifying entry points in the ~~clip~~ stream file.

11. (Previously Presented) The computer readable medium of claim 10, wherein each entry point map indicates which of the identified entry points is a last entry point in an interleaved unit.

12. (Previously Presented) The computer readable medium of claim 10, wherein each entry point map indicates which of the identified entry points is a first entry point in an interleaved unit.

13. (Previously Presented) The computer readable medium of claim 10, wherein the entry point maps are aligned in time.

14. (Currently Amended) A computer readable medium storing a ~~computer executable program to reproduce a data format structure and having a~~ an executable data structure for managing reproduction of at least video data having multiple reproduction paths recorded on the computer readable medium by a reproduction device, comprising:

a data area for storing a plurality of ~~clip~~ stream files, each ~~clip~~ stream file including video data associated with one of the multiple reproduction paths, each ~~clip~~ stream file divided into entry points of video data, the entry points in each ~~clip~~ stream file being grouped into one or more interleaving units, and the plurality of stream ~~clip~~ files being interleaved in the data area on a interleaving unit basis; ~~and~~

a playlist area for storing playlist files, the playlist file including at least one playitem, the playitem identifying a playing interval in a clip of the video data; and

a clip information area for storing clip information files, the clip information files~~management area separate from the data area, the management area storing management information~~ for managing reproduction of the video data having multiple reproduction paths by the reproduction device, the clip information file~~management information~~ including at least one an entry point map associated with a corresponding each reproduction path of the multiple reproduction paths, each entry point map associated with a corresponding stream file and identifying the entry points in the video data for the associated reproduction path, the stream file, the clip information file, and the playlist file being logically separate.

15. (Currently Amended) The computer readable medium of claim 14, wherein each interleaved unit in at least one ~~clip~~ stream file includes a same number of entry points.

16. (Currently Amended) The computer readable medium of claim 14, wherein at least two interleaved units in at least one ~~clip~~ stream file have a different number of entry points.

17. (Currently Amended) A computer recordable medium storing—a

~~computer executable program to reproduce a data format structure and having a~~  
an executable data structure for managing reproduction of at least video data  
having multiple reproduction paths recorded on the computer readable medium  
by a reproduction device, comprising:

a data area for storing stream files, the stream files including at least a  
portion of the video data having multiple reproduction paths, the video data  
having multiple reproduction paths being divided into one or more interleaving  
units, each interleaving unit associated with one of the reproduction paths,  
each interleaving unit being formed of a number of entry points, and the  
interleaving units associated with different reproduction paths being  
interleaved in the data area; ~~and~~

a playlist area for storing playlist files, the playlist file including at least  
one playitem, the playitem identifying a playing interval in a clip of the video  
data; and

a clip information area storing clip information files, the clip information  
files ~~a management area separate from the data area, the management area~~  
~~storing management information for managing reproduction of the video data~~  
having multiple reproduction paths by the reproduction device, the clip  
information file ~~management information~~ including at least one an entry point  
map associated with a corresponding each reproduction path of the multiple  
reproduction paths, each entry point map associated with a corresponding  
stream file and identifying the entry points in the video data for the associated

reproduction path, the stream file, the clip information file, and the playlist file being logically separate.

18. (Previously Presented) The computer readable medium of claim 17, wherein the number of entry points is fixed for at least interleaving units associated with a same reproduction path.

19. (Previously Presented) The computer readable medium of claim 17, wherein the number of entry points varies for at least interleaving units associated with a same reproduction path.

20. (Currently Amended) A method of recording a data structure for managing reproduction of at least video data having multiple reproduction paths on a recording medium, comprising:

recording stream files in a data area of the recording medium, the stream files including at least a portion of the video data having multiple reproduction paths ~~in a data area of the recording medium~~, the video data having multiple reproduction paths being divided into one or more interleaving units, each interleaving unit associated with one of the reproduction paths, each interleaving unit starting and ending with a reproduction path change point, and the interleaving units associated with different reproduction paths being interleaved in the data area, and the video data in each interleaving unit being divided into one or more entry points; and

recording playlist files in a playlist area of the recording medium, the playlist file including at least one playitem, the playitem identifying a playing interval in a clip of the video data; and

recording clip information files in a clip information area of the recording medium, the clip information files ~~management information in a management area separate from the data area, management information~~ for managing reproduction of the video data having multiple reproduction paths, the clip information file ~~management information including at least one an entry point map associated with a corresponding each reproduction path of the multiple reproduction paths, each entry point map associated with a corresponding stream file and identifying the entry points in the video data for the associated reproduction path, the stream file, the clip information file, and the playlist file being logically separate.~~

21. (Currently Amended) A method of reproducing a data structure for managing reproduction of at least video data having multiple reproduction paths recorded on a recording medium, comprising:

reproducing stream files from a data area of the recording medium, the stream files including at least a portion of the video data having multiple reproduction paths ~~from a data area of the recording medium, the video data having multiple reproduction paths being divided into one or more interleaving units, each interleaving unit associated with one of the reproduction paths, each interleaving unit starting and ending with a reproduction path change~~



point, and the interleaving units associated with different reproduction paths being interleaved in the data area, and the video data in each interleaving unit being divided into one or more entry point; ~~and~~

reproducing playlist files from a playlist area of the recording medium, the playlist file including at least one playitem, the playitem identifying a playing interval in a clip of the video data; and

reproducing clip information files from a clip information area of the recording medium, the clip information files ~~management information from a management area separate from the data area, the management information~~ for managing reproduction of the video data having multiple reproduction paths, the clip information file ~~management information~~ including at least one an entry point map associated with a corresponding each reproduction path of the multiple reproduction paths, each entry point map associated with a corresponding stream file and identifying the entry points in the video data for the associated reproduction path, the stream file, the clip information file, and the playlist file being logically separate.

22. (Currently Amended) An apparatus for recording a data structure for managing reproduction of at least video data having multiple reproduction paths on a recording medium, comprising:

an optical recording device configured to record data on the recording medium; and

a controller, operably coupled to the optical recording device, configured to control the optical recording device ~~to record the video data having multiple reproduction paths on the recording medium, the controller configured to control the optical recording device to record~~ stream files in a data area of the recording medium, the stream files including at least a portion of the video data having multiple reproduction paths ~~in a data area of the recording medium, the video data having multiple reproduction paths being divided into one or more interleaving units, each interleaving unit associated with one of the reproduction paths, each interleaving unit starting and ending with a reproduction path change point, the interleaving units associated with different reproduction paths being interleaved in the data area, and the video data in each interleaving unit being divided into one or more entry point, and~~

the controller configured to control the optical recording device to record playlist files in a playlist area of the recording medium, the playlist file including at least one playitem, the playitem identifying a playing interval in a clip of the video data; and

the controller configured to control the optical recording device to record clip information files in a clip information area of the recording medium, the clip information files ~~management information~~ for managing reproduction of video data having the multiple reproduction paths ~~in a management area separate from the data area of the recording medium, the clip information file management information including at least one~~ an entry point map associated with a corresponding each reproduction path of the multiple reproduction

paths, each entry point map associated with a corresponding stream file and identifying the entry points in the video data for the associated reproduction path, the stream file, the clip information file, and the playlist file being logically separate.

23. (Currently Amended) An apparatus for reproducing a data structure for managing reproduction of at least video data having multiple reproduction paths recorded on a recording medium, comprising:

an optical reproducing device configured to reproduce data recorded on the recording medium;

a controller, operably coupled to the optical reproducing device, configured to control the optical reproducing device to reproduce stream files from a data area of the recording medium, the stream files including at least a portion of the video data having multiple reproduction paths~~from a data area of the recording medium,~~ the video data having multiple reproduction paths being divided into one or more interleaving units, each interleaving unit associated with one of the reproduction paths, each interleaving unit starting and ending with a reproduction path change point, the interleaving units associated with different reproduction paths being interleaved in the data area, and the video data in each interleaving unit being divided into one or more entry point; and

the controller configured to control the optical recording device to reproduce playlist files in a playlist area of the recording medium, the playlist

file including at least one playitem, the playitem identifying a playing interval in a clip of the video data; and

the controller configured to control the optical reproducing device to reproduce clip information files from a clip information area of the recording medium, the clip information files~~management information~~ for managing reproduction of the video data having multiple reproduction paths ~~from a management area separate from the data area of the recording medium, the clip information file~~~~management information~~ including at least one an entry point map associated with a corresponding~~each~~ reproduction path of the multiple reproduction paths, each entry point map associated with a corresponding stream file and identifying the entry points in the video data for the associated reproduction path, the stream file, the clip information file, and the playlist file being logically separate.

24. (Currently Amended) The apparatus of claim 22, wherein each interleaved unit in at least one ~~clip~~ stream file includes a same number of entry points.

25. (Currently Amended) The apparatus of claim 22, wherein at least two interleaved units in at least one ~~clip~~ stream file have a different number of entry points.

26. (Currently Amended) The apparatus of claim 22, wherein each interleaved unit in at least one ~~elip~~ stream file includes a same number of entry points.

27. (Currently Amended) The apparatus of claim 23, wherein at least two interleaved units in at least one ~~elip~~ stream file have a different number of entry points.

28. (Currently Amended) The apparatus of claim 20, wherein the video data having multiple reproduction paths is divided into a plurality of ~~elip~~ stream files, each ~~elip~~ stream file including video data associated with one of the multiple reproduction paths, and each ~~elip~~ stream file divided into one or more of the interleaving units.

29. (Currently Amended) The apparatus of claim 21, wherein the video data having multiple reproduction paths is divided into a plurality of ~~elip~~ stream files, each ~~elip~~ stream file including video data associated with one of the multiple reproduction paths, and each ~~elip~~ stream file divided into one or more of the interleaving units.

30. (Previously Presented) The apparatus of claim 22, further comprising:  
an encoder configured to encode the video data having multiple reproduction paths.

31. (Previously Presented) The apparatus of claim 22, further comprising:  
a source packetizer configured to packetize the video data.

32. (Previously Presented) The apparatus of claim 23, further comprising:  
a source de-packetizer configured to de-packetize a packet of the video  
data.